NAD 2600

POWER AMPLIFIER

MONITOR SERIES

INSTRUCTIONS FOR INSTALLATION AND OPERATION

A NOTE ON INSTALLATION

This unit may be installed on any sturdy, level surface. Since its power transformer generates a magnetic hum field of moderate strength, a turntable (especially one with a moving-coil pickup cartridge) should not be located directly to the left of the amplifier nor directly above it.

The amplifier generates a modest amount of heat and thus requires some ventilation. Do not place it on a rug or other soft surface that it could sink into, obstructing the air inlets on its bottom. And be careful not to obstruct the air outlet grille on the top cover.

CAUTION: To prevent a fire or shock hazard, do not permit liquid or moisture to enter the amplifier. If liquid is accidentally spilled on it, immediately shut off its power and unplug its AC power cord. Allow sufficient time for complete evaporation to occur before operating the amplifier again. (If the liquid is anything but water and/or alcohol, the amplifier should be examined by a service technician before power is applied to it.)

Do not open the amplifier, or attempt to modify or repair it yourself. Refer all servicing to a qualified technician.

REAR PANEL CONNECTIONS

1. AC LINE CORD

Plug the AC line cord into a nearby wall outlet that provides the correct AC power line voltage.

If you must use an AC extension cord, it should be a heavy-duty (14 or 16 gauge) cord.

You may plug the power amplifier into a "switched" AC outlet on your preamplifier, and use the preamp's Power switch to turn the entire system on and off. But this is recommended ONLY IF the preamp's AC switching is rated to handle this amplifier's maximum power consumption (700 watts). The preamplifier's power switch should be rated to handle a turn-on surge current of at least 10 amperes.

If your preamplifier was not designed for high-current power switching, the practical alternative is to connect the preamp and power amp to a "power strip" containing several AC outlets, and use its heavy-duty switch to turn your system on and off.

2. AC LINE FUSE (Only in 220V, 240V Models)

Prolonged operation at excessively high power levels could cause this line fuse to blow. If this occurs, the amplifier will not operate, and the Power LED on the front panel will remain dark. In this case, unscrew the fuse holder and install a new 5-ampere fuse. If the second fuse blows, return the amplifier for service.

3. SPEAKER IMPEDANCE

The impedance of a loudspeaker varies with frequency, and in many loudspeakers the impedance is lowest at the frequencies where the highest power demands occur in music. In many "8Ω" loudspeakers this minimum impedance is from 4 to 6 ohms. And if you connect two pairs of 8-ohm speakers to the amplifier the nominal impedance of the combination is 4 ohms.

For these reasons, all NAD amplifiers and receivers are designed to produce maximum power output into a 4-ohm impedance, and 4Ω is the Normal setting of the Impedance selector. If you are not sure of the true impedance of your speakers, leave the Impedance switch at 4Ω (NORMAL).

If you are using a single pair of loudspeakers whose impedance is 8 ohms or higher, you can optimise the amplifier for maximum power delivery at this higher impedance by re-setting the switch to 8Ω (HIGH).

NOTE: The power must be switched off whenever the Impedance switch is operated (reset from 8 to 4 or vice versa).

To prevent accidental re-setting, the Impedance switch is recessed within a slot in the rear panel. Use the tip of a small screwdriver to slide the switch down to the 8Ω (HIGH) position.

CAUTION: If the impedance switch is set to 8Ω (HIGH) with loudspeakers whose true impedance is lower than 6 ohms, or with two pairs of speakers connected in parallel, the amplifier will tend to overheat and shut down when operated at high output levels. The amplifier will resume normal operation after it cools; but such abuse could also cause internal fuses to blow in order to protect the amplifier. If this occurs, return the amplifier to your dealer for service.

4. SOFT CLIPPING

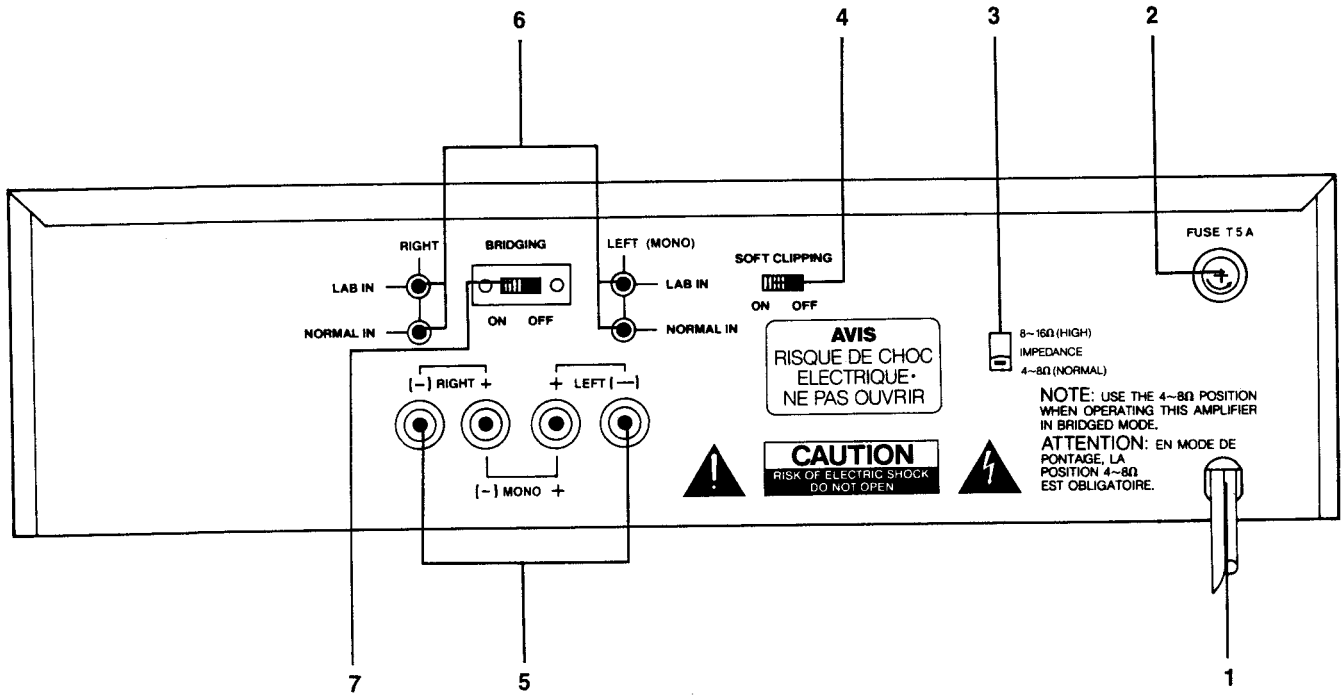
When an amplifier is overdriven beyond its specified power output it normally produces "hard clipping" of the signal with harsh distortion and power-supply buzz as the output transistors saturate. The NAD Soft Clipping circuit gently limits the output waveform and minimizes audible distortion when the amplifier is overdriven. If your listening involves moderate peak power levels, the Soft Clipping may

REAR PANEL

1. AC Line Cord.
2. AC Line Fuse (220V, 240V Models Only).
3. Speaker Impedance.
4. Soft Clipping.
5. Speaker terminals.
6. Inputs (Normal and Lab).
7. Bridging.

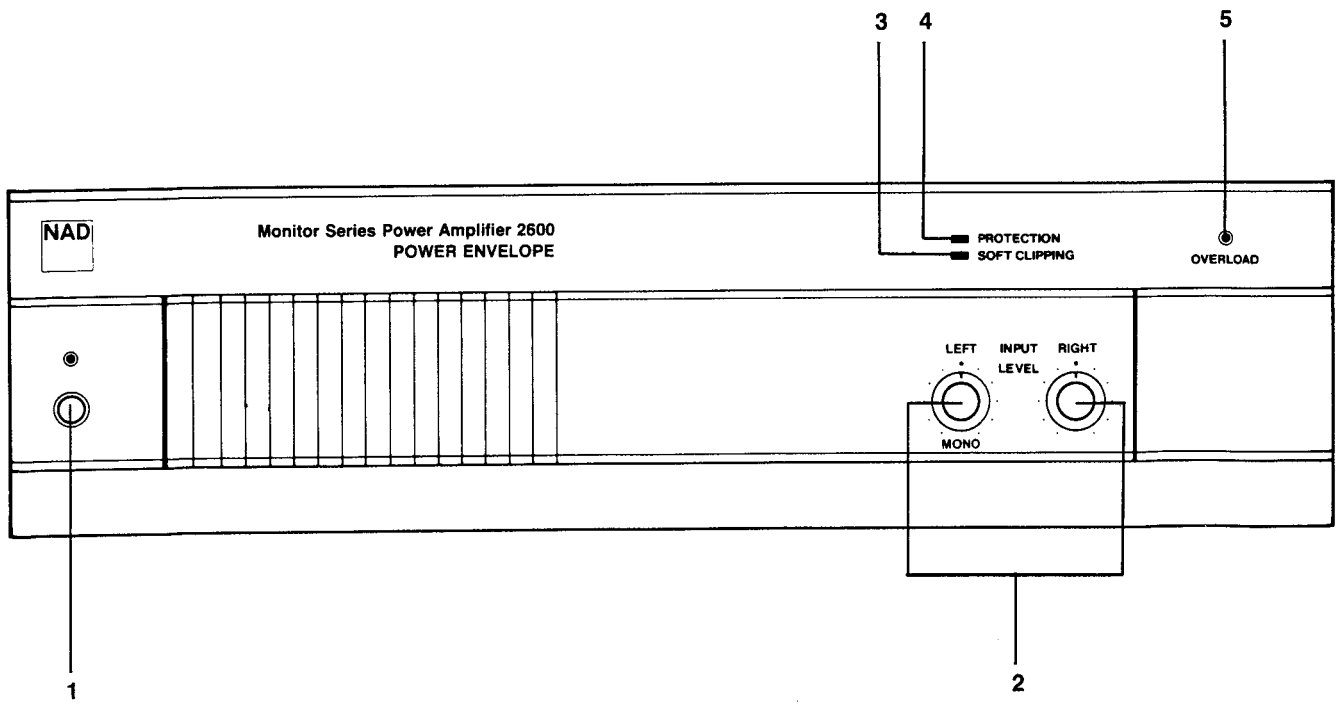
CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL



FRONT PANEL

1. Power.
2. Input Level.
3. Soft Clipping Indicator.
4. Protection Indicator.
5. Overload Indicator.



NOTE: Some NAD components are equipped with dual or multi-voltage transformers (which is indicated on the back panel). If you wish to change the voltage, please bring your unit to an authorized NAD service technician for internal conversion.

CAUTION: TO PREVENT ELECTRIC SHOCK DO NOT USE THIS (POLARIZED) PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

The lightning flash with arrowhead, within an equilateral triangle, is intended to alert the user of the presence of uninsulated "dangerous voltage" within the product's enclosure; that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user of the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

be left OFF. But we recommend that it be switched ON when playing music at very high levels that might exceed the amplifier's power capacity.

5. SPEAKER TERMINALS

The amplifier is equipped with special high-current binding-post speaker terminals to handle the highest peak power levels that may occur in the "bridged" mode or with low-impedance speakers. Connect the loudspeakers with heavy-duty (16-gauge or thicker) stranded wire. Heavy-duty wiring is especially desirable if you are using speakers of low impedance or two pairs of speakers wired in parallel.

Each binding post consists of a threaded metal shaft and a plastic screw-on bushing. Connections may be made in either of two ways:

(1) A lateral opening in the base of each terminal accepts bared wires up to 14 gauge in thickness. Separate the two conductors of the cord, and strip off about a half-inch (1 cm) of insulation from each. In each conductor, twist together the exposed wire strands. Unscrew the colored plastic bushing a few turns, insert the wire into the hole in the base of the terminal, and screw the bushing down tight until it grasps the wire and holds it securely.

Connect the wires from the left-channel speaker to the (L+) and (L−) terminals and the wires from the right-channel speaker to the (R+) and (R−) terminals. Check to be sure that no loose strand of wire is touching any adjacent terminal or the amplifier chassis.

(2) A spring-type banana plug may be inserted axially into the end of each binding post. The binding posts have the ¾-inch (19 mm) spacing required to accept standard dual-banana plugs. Purchase dual-banana plugs and install them on your speaker cables (or purchase speaker wires with dual-banana plugs already installed), and plug them into the binding-post terminals.

If you want to connect two pairs of loudspeakers in parallel, you may use both methods. Connect your main speakers permanently via the opening at the base of each binding post, and use dual-banana plugs for the second pair of speakers. Then the second pair of speakers can be connected and disconnected easily when desired.

CAUTION: TO AVOID THE RISK OF SHOCK, MAKE SURE THAT WHEN CONNECTING SPEAKERS THERE IS NO EXPOSED BARE WIRE WHICH MIGHT BE CONTACTED.

Phasing. Stereo speakers must operate in phase with each other in order to yield a good stereo image and to reinforce rather than cancel each other's output at low frequencies. If your speakers are easily moved, their phasing can easily be checked. Make the connections to both speakers, place the speakers face-to-face only a few inches apart, play some music, and listen. Then swap the connection of the two wires at the back of ONE of the speakers, and listen again. The connection which produces the fullest, boomiest bass output is the correct one. Connect the wires securely to the speaker terminals, being careful not to leave any loose strands of wire that might touch the wrong terminal and create a partial short-circuit; then move the speakers to their intended locations.

If the speakers cannot easily be set face-to-face, then phasing must rely on the "polarity" of the connecting wires. The speaker terminals on the amplifier are labeled (+) and (−) in each channel. The terminals at the rear of the speakers are also marked for polarity, either via red and black connectors or by labels: "+", "1", or "8" ohms for positive, "−", "0", or "G" for negative. As a general rule the red (+) terminal on the amplifier is to be connected to the red (positive) terminal of the speaker, in each channel.

To facilitate this, the two conductors comprising the speaker wire in each channel are different, either in the color of the wire itself (copper vs. silver) or in the presence of a small ridge or rib pattern on the insulation of one conductor. Use this pattern to establish *consistent* wiring to both speakers of a stereo pair. Thus if you connect the copper colored wire (or ribbed insulation) to the (+) amplifier terminal in the Left channel, do the same in the Right channel. At the other end of the wire, if you connect the copper colored wire (or the ribbed insulation) to the red or positive terminal on the left-channel speaker, do the same at the right-channel speaker.

6. INPUTS (Normal and Lab)

Before making or changing input connections to the power amplifier, make certain that its Power is switched OFF.

Connect the signal cable from your preamplifier either to the NORMAL input jacks or to the LAB input jacks.

The NORMAL inputs contain minimum-phase infrasonic and ultrasonic filters, whose purpose is to remove non-musical signals at frequencies below 10 Hz and above 40 kHz (due to turntable rumble, disc warps, radio-frequency interference, tracing distortion, etc). These inputs should be used, especially if your preamplifier lacks such filtering.

The LAB inputs bypass these filters, providing extended response at infrasonic and ultrasonic frequencies.

7. BRIDGING

This switch "bridges" the two power amplifier channels to form a monophonic amplifier with more than double the output power. To convert to bridged operation, the following procedure should be followed.

(1) Switch OFF the POWER.

(2) Be sure that the IMPEDANCE switch is set to 4Ω (NORMAL). If it is at 8Ω (HIGH), re-set it to 4Ω (NORMAL).

NOTE: In the bridged mode the loudspeaker's impedance is effectively halved as "seen" by the amplifier. An 8-ohm load looks like 4 ohms, a 4-ohm load looks like 2 ohms, and pairs of 4-ohm speakers operated in parallel will look like a 1-ohm load. Driving paralleled low-impedance speakers to high levels will cause the amplifier to overheat and shut down, or may cause internal fuses to blow in order to protect the amplifier. For best results the bridging mode should be used with a single 8-ohm or higher impedance speaker in each channel. In either case, the Impedance switch should be set to 4 ohms.

(3) Disconnect any signal cables from the input jacks. Decide whether this amplifier will be driving the Left or Right speaker. Connect the corresponding (left or right) signal cable from your preamplifier to one of the L input jacks of this amplifier (either LAB or NORMAL, as you prefer).

In the bridged mode the amplifier is driven only through its L (Left) input, and the volume is adjusted with the Left input control, even though it may be connected to the "Right" speaker. If another NAD 2600 amplifier in bridged mode is used for the second stereophonic channel, it also will be driven through an L input, regardless of whether it is used to drive the Left or Right loudspeaker.

(4) Disconnect any wires from the SPEAKERS terminals. Select the wire from the speaker that will be driven by this bridged amplifier. Connect its "positive" conductor to the L+ terminal and its "negative" conductor to the R+ terminal (i.e. the two red terminals). DO NOT connect any wires to the black terminals (L− and R−).

CAUTION: In the bridged mode the speaker wires must be "floating" with respect to the circuit ground. Do NOT connect the speaker wires to anything that shares a common ground between stereo channels (such as some speaker switches or adapters for electrostatic headphones), nor to any-

thing which shares a common ground with the amplifier's inputs (such as a switching comparator or a distortion analyzer).

(5) After the preceding conditions have been satisfied, re-set the Bridging switch. It is held in place by a plastic bracket fastened by two screws. Use a small screwdriver to loosen the bracket screws, turning each about a half-turn counterclockwise; then slide the switch to ON (MONO). The bracket will move with the switch. Re-tighten the screws to secure the switch in its new position. Finally, turn the power on.

(6) To return the amplifier to normal stereo operation at a later date, first turn off the power. Loosen the bracket screws, re-set the Bridging switch to OFF (STEREO), and tighten the bracket screws to prevent the switch from being moved accidentally. Restore normal Left and Right input connections, and re-connect loudspeaker wires to the speaker terminals as described above under SPEAKERS.

FRONT PANEL CONTROLS

1. POWER

Press the Power button to turn on the amplifier. The green LED glows when the power is on. Press the Power button again to switch the amplifier off.

2. INPUT LEVEL

The amplifier is equipped with separate input level controls for the two channels. Normally both controls should be turned to maximum. But there are several circumstances in which reduced settings may be useful:

(1) **Level-Matching.** In a multi-amplifier system, use these controls to match the output of this amplifier to others in the system.

(2) **Extended Volume-Control Range.** Many stereo systems have so much voltage gain that the speakers (or your ears) are over-driven at any preamplifier Volume-control setting higher than 11 or 12 o'clock. As a result you are confined to using only the lower half of the Volume control's range, where adjustments are imprecise and where most Volume controls produce channel-balance errors.

The solution is to turn the power amplifier's input-level controls down part-way (to about 1 o'clock, for example) in each channel. Now you can turn up your preamplifier's Volume control further, making effective use of most of its range. (Suggestion: adjust the power amplifier's input level controls so that your preferred maximum sound levels usually occur at about 2 or 3 o'clock on your Volume control.)

As an added benefit, this procedure suppresses any noise produced by the preamp's high-level circuitry (e.g. any residual hum or hiss that does not go away when the Volume is turned down).

(3) **Balance Correction.** Small errors in channel balance can dramatically degrade the apparent "depth" and "air" of the stereo image. Such balance errors may be due to normal production-line differences in speaker sensitivity, differences in the acoustic environment around the two speakers, and slightly different distances from your chair to each speaker. You can use the input-level controls to correct these fixed balance errors, freeing your preamplifier's balance control to correct balance errors in recordings.

Switch the preamp to mono and sit in your normal listening location. Ideally the "phantom" central image should seem to be floating in mid-air halfway between the left and right speakers. If it is located off-center, closer to one speaker, turn down the input-level control for that channel slightly in order to center the phantom mono image. Then restore the preamp to normal stereo operation.

If you have turned the input-level controls down part-way to adjust the overall volume level, do this balance correction as the final step.

NOTE: In bridged mode, the volume is adjusted with the Left input level control only.

3. SOFT CLIPPING INDICATOR

This amber LED glows when the Soft Clipping switch (on the rear panel) is ON.

4. PROTECTION INDICATOR

The amplifier can safely and cleanly drive impedances as low as 2 ohms with wide-range musical signals whose peak level is 500 watts or more. But if called upon to deliver high power *continuously* into a low impedance, the output transistors may overheat. In this case, protection relays will automatically disconnect the speakers and the PROTECTION light will illuminate.

If this occurs, switch off the Power. When the output stage cools, the relays will automatically re-connect the speakers, and normal operation can be resumed. In most cases a very slight reduction in volume level will prevent further interruptions in the sound.

If the protection relays interrupt the sound frequently, several possible causes should be considered: a loose strand of wire causing a partial short-circuit between speaker terminals, or continuous high-power operation into a very low impedance in the Bridged mode, or any obstruction of the free flow of air needed to ventilate the amplifier and dissipate its heat.

If the protection relay interrupts the sound even when the amplifier is cool, return the amplifier to your NAD dealer for service. The protection circuit may be responding to protect the speakers from an internal fault, such as an improper DC voltage at the speaker terminals.

5. OVERLOAD INDICATOR

This is an "audible clipping" indicator. It flashes on when the amplifier is over-driven into audible distortion. An input/output comparator continually compares the amplifier's output signal in each channel with the corresponding input waveform; any difference that lasts long enough to be audible (longer than a few thousandths of a second) triggers the LED on. If this indicator illuminates frequently, you should reduce your volume levels slightly (or purchase a second Model 2600 and use both amplifiers in the bridged mode for greater power).

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